Title (en)

INFRARED HYDROGEN/OXYGEN COMBUSTOR

Title (de)

INFRAROT-WASSERSTOFF/SAUERSTOFFBRENNER

Title (fr)

CHAMBRE DE COMBUSTION D'HYDROGÈNE/OXYGÈNE À INFRAROUGE

Publication

EP 3296630 A4 20190123 (EN)

Application

EP 16795611 A 20160505

Priority

- CN 201510263022 A 20150515
- CN 2016000241 W 20160505

Abstract (en)

[origin: EP3296630A1] Provided is an infrared hydrogen/oxygen combustor related to the field of combustion and heating. The combustor has an angular loop with a recess (1) allowing a water flow and vapor generation and having a surrounding member. The surrounding member (12) of the angular loop with a recess (1) surrounds a material-containing basin (14), and a gas collection cavity (17) is formed between the outer wall of the material-containing basin (14) and the inner wall of the surrounding member (12). A primary energy gas inlet (18) is disposed at a side of the gas collection cavity (17), and an exchange and communication of water, vapor and air between a lower portion of the material-containing basin (14) and the loop with a recess (1) is via connections of a small tube (16) and a small tube (7). A water solution (3) is disposed in the material-containing basin (14), and a catalytic material separator (15) is placed in the lower portion of the water solution (3). Above the catalytic material separator (15), a honeycomb ceramic water-absorbing perforated plate (5) fitting an inner wall of the material-containing basin (14) is disposed in the upper portion of the water solution (3), and a middle-lower portion of the water-absorbing perforated plate (5) is immersed in the water solution (3). A separator loop (6) is disposed in an upward facing part of the angular loop with a recess (1) and above a peripheral ridge of the material-containing basin (14), and an infrared radiation perforated plate (2) having the same number of holes and a corresponding hole direction with respect to the ceramic water-absorbing perforated plate (5) in the material-containing basin (14) is disposed oppositely within the separator loop (6). A two-stage material-containing container (9) having a separating gate is provided at a side of the angular loop with a recess (1), and catalytic material separators (10) are respectively provided in the separating gate of the material-containing container (9), and a small tube (8) and a small tube (13) are provided in the two-stage material-containing container (9) respectively in communication with the loop with a recess (1) and the material-containing basin (14), such that water ready for use and recycled water are controlled separately to supply a consumption amount of the water ready for use to the material-containing basin (14) according to the demand. The combustor employs a shallow basin to contain water and a material, oppositely receives near radiation of infrared light to decompose water into hydrogen and oxygen, thereby mixing primary energy and directly combusting, thus reducing the consumption of primary energy, lowering the cost of production and development, reducing pollution and protecting the environment.

IPC 8 full level

F23D 14/14 (2006.01); **F23C 13/00** (2006.01); **F23C 99/00** (2006.01); **F23D 14/18** (2006.01)

CPC (source: EP US)

F22B 1/003 (2013.01 - US); **F23C 13/00** (2013.01 - EP US); **F23C 99/006** (2013.01 - EP US); **F23D 14/126** (2021.05 - EP US); **F23D 14/151** (2021.05 - EP US); F23D 2203/105 (2013.01 - EP US)

Citation (search report)

- [A] CN 201621742 U 20101103 - DAJI ZHANG
- [A] CN 102748781 A 20121024 - DAJI ZHANG
- [A] CN 204227421 U 20150325 - ZHANG DAJI
- [A] CN 103512053 A 20140115 - YANG XUEYAN, et al
- See references of WO 2016184124A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 3296630 A1 20180321; **EP 3296630 A4 20190123**; CN 106287717 A 20170104; US 10190764 B2 20190129; US 2018073721 A1 20180315; WO 2016184124 A1 20161124

DOCDB simple family (application)

EP 16795611 A 20160505; CN 201510263022 A 20150515; CN 2016000241 W 20160505; US 201715813379 A 20171115